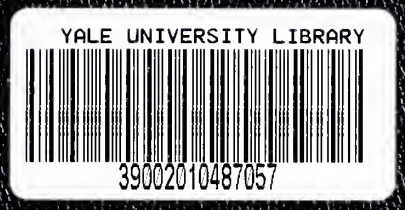

PSYCHOSOCIAL FACTORS ASSOCIATED WITH CONDOM USE AMONG URBAN ADOLESCENTS

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Abstract

PSYCHOSOCIAL FACTORS ASSOCIATED WITH CONDOM USE AMONG URBAN ADOLESCENTS.

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The primary risk factor for HIV transmission in adolescents is their sexual behavior, therefore if we are to decrease the transmission of HIV among adolescents we must address the factors associated with preventive and risky sexual behavior. The goal of this study was to collect information concerning the prevalence and correlates of condom usage in three cohorts of New Haven adolescents.

Research was conducted at three public educational sites. Site 1, was a school for pregnant adolescents. Site 2 was a detention center with educational services for school aged children. Site 3 was a traditional public high school serving grades 9-12. Students at each site completed a questionnaire assessing sexual behavior, coping skills, self-esteem, substance use, sexual activity, and a previous history of physical/sexual abuse. The data collection instrument incorporated three common theories in the field of adolescent sexual behavior; The Health Belief Model, Self-Efficacy Theory, and Reference Group-Based Social Influence Theory. SAS was used for bivariate analysis.

Site 1 had the lowest rate of condom use, with 29% reporting that they never use a condom. Site 2 reported the highest rate of condom use, with 47% of males and 63% of females reporting that they always used condoms during sexual intercourse. At this site consistent condom use was correlated with a positive attitude toward themselves (p=.001), a belief that they could avoid AIDS if they took precautionary steps (p=.003), and carrying a condom with them "just in case" (p=.001). At site 3 , the majority of students used condoms consistently or abstained from sex. Those who did not use condoms consistently were more likely to drink alcohol (p=.042) and report higher levels of stress in their lives (p=.014).

Each educational site had unique characteristics that influenced condom use behavior. These differences should be used to lead future research and the development of better interventions. If we are to stem the tide of adolescent transmission, AIDS education must be targeted, appropriate, and culturally sensitive

Acknowledgements

This project began in 1995 as a response to certain detrimental attitudes and behaviors that I witnessed among New Haven adolescents. Over the three years it has taken me to go from an idea to a published thesis, I have been greatly helped and suppported by a number of people. First, I would like to thank Dr. Robin Ryder for encouraging me to be an independent thinker. I would also like to thank the National Medical Fellowships and Bristol-Myers Squibb for financially supporting my research. I would especially like to thank the teachers and students at Wilbur Cross, Hillhouse, Polly McCabe, and the Whalley Avenue Correctional Facility because without their commitment and honesty I would have no data. I only hope that I can give back to them as much as they have given me. I would also like to thank my advisor, Dr. David Katz for shepherding me through the final phases of the thesis. Finally, I would like to thank God for my strength and purpose, and for blessing me with my mother, my husband, and many beautiful friends.

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Introduction

In little more than a decade the magnitude and character of Acquired Immune Deficiency Syndrome (AIDS) has changed; the United States epidemic has expanded from one primarily affecting white gay men to one in which the majority of new cases are people of color. Moreover, while African-Americans compose 13 percent of the United States population, they account for 40 percent of all people living with AIDS in the United States.[1] The 1986 Surgeon General's Report was the first to focus attention on adolescents at risk for acquiring and transmitting the Human Immunodeficiency Virus (HIV).[2] Although, adolescents currently account for a small fraction of the number of reported cases of AIDS in the US, this group has recently been shown to have an alarmingly high HIV incidence.[3] The true extent of HIV prevalence amongst adolescents can not be known due to the fact that the Centers for Disease Control and Prevention (CDC) collects AIDS case surveillance data, even though HIV seroprevalence would in fact be more useful as a marker due to the long latency period from infection to clinical diagnosis. Recent studies have found HIV prevalence rates ranging from 0.1% to 2.5%, depending on which adolescent populations are analysed.[4] A review of the literature by DiClemente found that seroprevalence ranged from a low of .17 per 1000 (for white military applicants) to a high of 68 per 1000 (for Latino youths in homeless shelters in New York City). [5] Additionally, a collaborative study between the CDC and the American College Health Association anonymously tested blood samples at 35 US colleges and found an HIV seroprevalence rate of .2 % or 2 per 1000.[6] Since only a small percentage of at-risk adolescents have been

part of any seroprevalence studies the total extent of HIV in the adolescent population remains unknown.

Among adolescents, urban youth of color are over represented among both AIDS cases and individuals with asymptomatic HIV infection.[7] Seroprevalence rates among African-American youth are generally 3 to 5 times higher than their white counterparts. In communities of color, AIDS is now the sixth leading cause of death in young people.[8] These statistics highlight the importance of in depth study of sexual behaviors, attitudes, and risk perceptions of sexually active, minority adolescents because of their high risk of heterosexual exposure. The following discussion will explore adolescent sexual behavior, substance use patterns, psychosocial development, and physical development. Additionally, the unique aspects of coming of age in New Haven will be discussed. It is hoped that this exploration will provide specific reasons why adolescents in general, and New Haven adolescents in particular, are vulnerable to HIV infection and why this research is important.

AIDS and Adolescents: Why Teens are at Risk

Sexual Behavior

Adults in their twenties constitute 20% of all AIDS cases in the United States, and because of the long incubation period of HIV infection many of these young adults diagnosed with AIDS were infected during adolescence. As the demographics of AIDS has changed so has its primary mode of transmission. In the early part of the epidemic most adolescent cases were due to blood transfusions, now the primary mode of transmission of HIV to adolescents is due to a variety of sexual and substance abuse behaviors.[9] Large surveys of youth suggest that this group's increasing HIV seroprevalence

is due to several factors, including the initiation of sex at an early age, inconsistent use of condoms, and elevated rates of sexually transmitted diseases.[10] A 1991 survey of high school students in the United States found that 54% were sexually active, and 52% of the adolescents surveyed reported that they did not use a condom at last intercourse. Additionally, 19% reported four or more sexual partners over their lifetime.[11]

The initiation of sexual activity at earlier ages, coupled with increasing numbers of sexual partners has produced an epidemic of sexually transmitted diseases (STD's) among adolescents. The highest rate of gonorrhea, syphilis, cytomegalovirus, chlamydial cervicitus, and rate of hospitalization for pelvic inflammatory disease in the United States are found among 15-19 year olds. The prevalence of STD's among adolescents may foreshadow HIV seroprevalence. Among sexually active females national data show that those in the 10 to 14 year old and 15 to 19 year old age groups had the highest rates of infection of any age group. Further proof of the early initiation of sexual activity is shown by the fact that the rates for the 10 to 14 year olds were very similar to the rates for females 15 to 19 years old - approximately 3,500 cases per 100,000 sexually active females. Similar data on chlamydia and syphilis reveal the same dismal picture.[12] Previous STD's also increase the transmission of HIV because infections, through an inflammatory response, recruit more CD4+ cells into the genital tract of the infected individual. The dominant HIV binding affinity is for immunology cells expressing the CD4+ molecule, so any facilitator of this contact may be expected to increase transmission risk. Additionally, ulcerative STD's like syphilis and herpes, disrupt the integrity of the epithelial mucosa and facilitate HIV contact with the lymphatic and circulatory systems. [13]

Substance Use

Substance use and sexual activity increase during adolescence, and are often correlated. Sexually active adolescents are more likely to use drugs and alcohol than are their nonsexually active counterparts. Furthermore, these associations are stronger for females than for males.[14] Research has shown that the severity of substance abuse is associated with depression, anxiety, low self-esteem, a greater number of negative life events, and lower levels of perceived parental love. [15] Furthermore, it is known that problem behaviors cluster in adolescents, so that there are strong relationships between drug use, depression, suicide attempts, scholastic problems, trouble with the law, and unsafe sex. [16] Street drugs, alcohol, and sex may all be used by multiproblem adolescents trying to alleviate their distress. For example, sex can provide a youth from a dysfunctional family a temporary situation in which they are touched and held, which can meet their need to feel that someone cares. [17] Substance use behavior is particularly relevant to HIV transmission through the sharing of drug equipment, and indirectly by lowering inhibitions, which can happen with the use of alcohol, marijuana, and cocaine.

Cigarettes

Although cigarettes are not a risk factor for HIV infection they are considered "gateway drugs" because their use is associated with the use of more risky substances. With female adolescents leading the way for the past two decades, 3000 American adolescents become regular smokers every day. Over $1 billion worth of cigarettes are purchased each year by 3 million adolescents, who smoke an average of a half a pack per day. [18]

Alcohol

Alcohol use impairs judgment and may make unprotected sex more likely.[16] Alcohol use increases markedly during adolescence. A national survey conducted by the National Institute on Drug Abuse in 1992, revealed that 69% of 8th graders (12-13 year olds), 82% of 10th graders (16 year olds), and 88% of 12th graders (17-18 year olds) used alcohol. [19]

Marijuana

By 12th grade more than 30% of school children have tried marijuana, and its use has increased significantly for 8th graders.[19]

Cocaine

Although cocaine is used much less frequently than alcohol or marijuana, the 1992 data show that 6.1% of high school seniors have used cocaine at least once. Furthermore, experimentation is occurring at younger ages, with 2.9% of 8th graders reporting lifetime use of cocaine.[19]

Heroin

Intravenous drug use has remained low throughout high school, fewer than 2% of US high school students engage in intravenous drug use. [20]

Psychosocial Development

Adolescence is defined as the transition period from youth to adulthood. Psychologically, adolescence is characterized by cognitive growth and formation of the personality.[21] Adolescence is the time for experimentation with personality and personal choices.[17] According to Erikson's stages of human development, adolescence is the stage of identity consolidation versus role confusion, and it is when the sense of an independent self is developed. It is also the time when according to Piaget we move from "concrete operations" to "formal operational thought". [21] We develop the ability to think and reason abstractly, the capacity to imagine hypothetical situations and to anticipate the consequences of different courses of action. Formal operational thinking is needed for adolescents to apply abstract principles about the transmission and prevention of HIV infection to actual high risk situations[17] However, the ability to consider the future, consequences, and decisions comes with age. In fact, many persons do not develop it by adulthood. Long and Cobb found that fewer than half of all adolescents have developed the capacity for formal operational thinking by age 18.

Therefore because of developmental limitations in cognitive and social cognitive abilities adolescents participate in high risk behavior. Their thinking is typically concrete, egocentric, and not future oriented. Thus, it is not surprising that condom use is low among teens, they tend to believe they are immune to negative outcomes like STD's or unwanted pregnancies. Because they are in the midst of identity consolidation adolescent relationships tend to be short term monogamous relationships, this pattern is also described as serial monogamy. In a population of high school students, 21% reported having two or

more sexual partners in the past year. [23] Teenagers tend to experience their emotions more intensely and often exhibit emotional lability, which can lead to impulsive behavior. This pattern of behavior is unlikely to provide youth with the opportunity for emotional closeness with their sexual partner, which greatly decreases the likelihood that a condom will be used during intercourse.[24] Because adolescents often lack the interpersonal skills to ask about their sex partner's sexual history it is unlikely that they screen their potential sexual partners regarding previous risk behaviors.[25] In fact, many acknowledge that they would be quite uncomfortable if asked about their own sexual history. Furthermore, many teens do not understand that a person can look physically healthy and still be HIV positive.[26] Therefore, their immature social cognitive skills results in a lack of knowledge about their partners HIV status which may put female adolescents at particular risk, given the cultural norm for females to date older men, who are at higher risk for already being infected with HIV.

Finally, adolescents are very easily influenced by the opinions of their peers. Adolescent peer norms have a strong impact on sexual behavior. It appears that what youths believe peers to be doing is more related to their own behavior than what their peers are actually doing.[27] Therefore norms, which are the perceived standards of behavior for one's subgroup, are important determinants of adolescent behavior.

Physical Development

Adolescence is distinguished biologically by puberty. Dramatic endocrine changes produce menarche in girls, the first ejaculation in boys, secondary sex characteristic development, and acceleration in skeletal growth.[21] These significant changes are important because adolescent behaviors are shaped by biological as well as social

influences. Over the 20th century the average age of menarche has decreased which may be associated with the decrease in age of initiation of sexual activity.[28] Earlier age of puberty may be related to earlier hormonal activity and experience of sexual drive, desire, and attraction.[29]

Adolescent women may be at comparatively higher risk of HIV infection for a given number of exposures due to immature vaginal mucosa. Adolescents typically have large transformation zones and exposed columnar epithelia (cervical ectopy). It has been hypothesized that cervical ectopy increases susceptibility to STD's or HIV infection. Additionally, HIV transmission is increased by sexual activity at times in which there is expected to be blood exposure e.g. first coital experience, rape, or menses.[13] From these data it is clear that biological aspects of adolescent development can increase their risk for HIV. For a visual representation on how all of these factors affect adolescent behavior see Fig.1.

Adolescents in New Haven

New Haven is in many ways a typical post-industrial Northeastern city, with the exception that it is home to one of the nation's preeminent universities. Despite this accolade, over the past forty years New Haven has seen its job base erode, and along with that property values have plummeted, the tax base has diminished, white flight occurred to the suburbs, and the elm city became an inner city. Today, the majority of New Haven's residents are African-American and Latino, and the city is a census defined poverty area because greater than 20% of its residents live below the poverty line. Poverty breeds violence, crime, drug abuse, and poor health outcomes. Therefore, in addition to the

previously discussed psychosocial and biological factors that put adolescents at risk for acquiring HIV, there are certain circumstances that are unique to inner city minority adolescents in general, and New Haven adolescents in particular, which increase their vulnerability.

Inner cities are defined as areas of pervasive poverty, poor schools, and inadequate social services, housing, and job opportunities. These complex social forces interact to affect HIV transmission because from past experiences we know that the incidence of HIV increases with increasing poverty; and while it is true that individual behavior drives HIV infection, it is also true that social and economic forces have a powerful influence on how individuals behave. Numerous studies have shown that underdevelopment, unemployment, poverty, and illiteracy are correlated with decreased access to health education and to health care, which in turn result in poor health and increased risk of disease. All of these factors help contribute to the high rate of HIV disease and mortality among African-Americans in New Haven.[30]

While Americans tend to use drugs at fairly constant rates across all demographic categories, the kinds of drugs used vary across places and populations.[1] In the inner city, injection drugs are prevalent because centers of narcotic distribution historically have been located in impoverished urban areas of the Northeast. As a result, injection drug use is disproportionately associated with northeastern urban life. For example, researchers estimate that between one-fourth to one-half of all injection drug users live in New York City alone [31], with a disproportionate number being African-American and Latino.[32] Injection drug use is the major mode of transmission of HIV for men and women in Connecticut.[33] We can infer from the state data that this trend holds true in New Haven,

since the majority of the state's cases are concentrated in five inner cities like New Haven. The high prevalence of HIV infected injection drug users in New Haven, and other inner cities, heightens the risk of HIV infection for minority adolescent residents. While many studies have shown that injection drug use is rare among adolescents, they are at increased risk for HIV because they may have unprotected sex with injection drug users or with individuals who have had unprotected sex with an injection drug user.[34] This potential risk is highlighted by the seroprevalence research done on Job Corps students. The Job Corps is a federally funded educational training program with over 100 centers across the United States. The program targets disadvantaged youth who have not completed high school. The program has done HIV testing of its students since 1987, and they found that African-American adolescent's seroprevalence varied substantially by region, and was highest in the Northeast (6.9 per 1000). Furthermore, for African-American and Latino students from large northeastern cities, seroprevalence increased by 4.3 per 1000 per year of age and reached 24.8 per 1000 (approx.1/40) in students aged 21 years.[35]

Early age of sexual intercourse is another risk factor for HIV that is more prevalent among urban African-American youth than the general adolescent population. One large study of adolescents found that 18% of white males reported having sexual intercourse before age 13, while 49% of African-American males were sexually active before age 13, the percentages for white and African-American females were 5% and 12% respectively. Therefore, adjusting for gender, African-American adolescents were 6.9 times more likely than white adolescents to have begun sexual intercourse by age 13. [36] While another national study found that the average age of first intercourse for whites is 15.9, it is 14.4 for African-American males.[37] However, a 1981 study found the average age of first

sexual intercourse for urban African-American males to be 11.8 years.[38] This early age of sexual activity is concerning for a multitude of reasons, but perhaps most importantly is the fact that early age at first intercourse is associated with an increased number of lifetime sexual partners, and a greater risk for STD's.[39] The fact that greater than 40% of the cases of gonorrhea and chlamydia in New Haven are found among adolescents bears witness to the high levels of unprotected sex that adolescents are participating in.[40]

The earlier age of initiation of sexual activity among urban African-Americans is both difficult to explain and to understand. However, on average, rates of poverty and low socioeconomic background, which are independently associated with early sexual experience , are greater among African-American adolescents than among white adolescents.[34] Another intriguing concept which may help to explain this discrepancy is the concept of psychosexual milestones. A psychosexual milestone is a specific kind of sexual behavior (e.g. first kiss, first time petting, first sexual intercourse) for which a single first experience is postulated to permanently change the person's sense of self and relationship to others (e.g. virgin to nonvirgin). Once a person attains a certain milestone they continue to engage in that level of activity. This graduated approach allows the adolescents to learn from earlier psychosexual milestones before tackling the more complicated issues involved in having sexual intercourse. Whites, especially white females, proceed through the graduated series of sexual milestones in which holding hands and kissing precede petting, which precedes sexual intercourse. [41] However, this progression does not seem to describe the sexual development of African-American youth. African-American youth often experience sexual intercourse before petting, and many do so before age 13. [42] Another caveat to this discussion is the fact that more evidence is

accumulating showing that, at least for girls, many of their early sexual experiences were non-consensual. In its 1994 report on *Sex and America's Teenagers*, the Alan Guttmacher Institute discovered that 74% of girls who had sex before 14, and 60% who had sex before 15, reported their first experience as a rape.[43]

Lastly, the high HIV prevalence in their communities put inner city adolescents at an increased risk for HIV.[13] The plain and simple fact is that with HIV infecting approximately 1 out of 3 African-American males between the ages of 25-44 in New Haven, a New Haven adolescent has a very high probability of sleeping with someone who is infected.[33] The key to risk of exposure to HIV and other STD's is not only the frequency of sexual intercourse or frequency of condom use, but the frequency of unprotected intercourse with people who are likely to be infected. High rates of intercourse, low rates of condom usage, and high rates of HIV prevalence in their neighborhoods may prove to be a deadly combination for urban minority adolescents.[34] These studies highlight the necessity to modify our present educational activities to take into consideration the heightened sexual awareness/activity of today's adolescents. The sexual behavior and attitudes of urban adolescents of color requires special attention. Because more than 50% of African-American children grow up in poverty, having enough money to live on has been found to be a much greater concern among these minority adolescents then the fear of contracting HIV infection.[2] It is this combination of factors that makes understanding the determinants of safe and high risk sexual behavior in urban adolescents so important.

Factors Associated with Risky and Preventive Behavior

Numerous studies have been done looking at different adolescent populations and factors associated with high risk sexual behaviors. Biglan et. al., found that adolescents are more likely to engage in high-risk sexual behavior when they are engaged in other problem behaviors e.g. cigarette smoking, illicit drug use, alcohol use, and antisocial behavior. Interestingly, it is also clear from this study and others that high levels of parental support and monitoring were consistently associated with less risky sexual behavior.[42,44] In support of what is known about the importance of peer groups, Walter's study of 10th graders in New York City found that students who believed that the majority of their friends had intercourse and never or inconsistently used condoms scored in the riskier categories of an AIDS behavior index.[45] In a large study of Massachusetts adolescents it was found that concern about acquiring AIDS, beliefs that condoms are effective in preventing HIV transmission, and speaking to a physician about AIDS predicted condom use, whereas, beliefs that condoms reduce pleasure, are embarrassing to use, or that respondents do not routinely carry condoms were highly predictive of not using condoms. Additionally, teens who averaged five or more drinks daily or used marijuana in the previous month were 2.8 and 1.9 times, respectively less likely to use condoms.[46] A study of female teenagers found that greater enjoyment of condoms and greater willingness to request partners to use condoms were associated with more frequent condom use.[47] Other research has shown that consistent condom use is more frequent in males, those with little history of risk behavior, and in adolescents who had strong

intentions to use condoms in the future.[48,49] Suprisingly, several studies that have reported increased use of condoms among adolescents, have found that condom use is unrelated to perceptions of risk and concern about AIDS; but instead they are used primarily for contraception.[7,50]

Research has also been done to look at different subpopulations of adolescents. Looking at an urban minority population of sexually active adolescent girls, Overby and Kegeles found that self-esteem, general and AIDS specific self-efficacy, overall motivation to use condoms, a desire to avoid pregnancy, sexual communication skills, condom availability, and perceptions of condom use by peers were all positively associated with condom use.[7] In a similar sample of urban adolescent males, Pendergast et al., found four independent variables which were significantly associated with self-reported past and intended condom use. The four variables were: perceived hassle of use, perceived girlfriend's attitude toward condom use, age, and self-confidence in correct use of condoms. Suprisingly, this study found that younger age was positively correlated with condom use.[51] Other studies looking at urban adolescents have found that academic failure, substance use, adverse life circumstances, and poor parental support were most strongly associated with involvement in AIDS risk behaviors.[10,52,53] Again we should note that in these studies although condom use for the prevention of HIV and other STD's was queried and analyzed it was never found to be a significant determinant of condom use behavior. Similarly, knowledge and beliefs about AIDS had little correlation with behavior.

Several studies have also studied the psychological determinants of AIDS preventive behavior. Goldman and Harlow discovered that a sense of life meaning and

perceived control, as well as feelings of self-efficacy and perceived risk, were significantly related to AIDS preventive behavior in college students. Therefore, positive feelings of competence, control, and purposefulness are associated with feeling capable that in a situation like the AIDS epidemic, one can take precautions and successfully prevent HIV infection.[54] Another study examined the influence of moral reasoning on young men's sexual risk behaviors. They found that those scoring high on moral reasoning reported fewer sex partners, fewer incidences of unprotected sex, fewer pick-ups, had more respect for partners who wanted to practice safe sex and their sexual motivation on dates was lower.[55]

Study Objectives

The primary risk factor for HIV transmission in adolescents is their sexual behavior. Therefore, if we are to impact the transmission of HIV among adolescents we must address the factors associated with preventive and risky sexual behavior. As can be seen by the previous discussion a plethora of factors associated with sexual behavior exist. In this study we set out to look for factors that were malleable, that possibly could be changed with the right intervention. Furthermore, it was our goal to find modifiable social psychological factors associated with behaviors that create an elevated risk of HIV infection in an inner city adolescent population. These factors would later serve as a basis for development of effective interventions. Much of the existing research on adolescents has been conducted on lower risk school based populations. As delineated in the previous section, there are unique risk factors associated with urban minority adolescents that would tend to decrease the generalizability of research done on low risk populations. Therefore, the goal of this study was to collect information concerning the prevalence and correlates of high risk and preventive behaviors in three cohorts of New Haven adolescents. The children involved were chosen from three sites; a local high school, a school for pregnant adolescents , and a correctional facility. The New Haven Board of Education instituted an AIDS curriculum for K-12th grade in 1989. (See Fig.2) We hypothesized that despite being exposed to similar levels of AIDS education, unique to each cohort were attitudinal and emotional factors that could interfere with implementation of knowledge into behavior. The main dependent variable was condom use, we expected this and other variables to vary by site. It was hoped that these variations would produce site specific

correlates of condom use behavior. Furthermore, this study is unique in that the psychosocial factors associated with AIDS risk behaviors at three different educational sites has never been studied. It is hoped that this research will be more than a laundry list of high risk behaviors, but that it will discover interesting psychosocial correlates of high risk behavior which can be used to develop appropriate and effective AIDS education.

Methods

The development of the hypothesis, the development and design of the survey instrument, the administration of the survey, data entry, and the majority of the data analysis were conducted by the primary investigator. Numerous professionals were consulted at each step to ensure the validity of the study, but all final decisions were ultimately the responsibility of the primary investigator. Dr. Katz wrote the programs in SAS to enable ANOVA and multiple linear regression analysis, but that remains an ongoing process and will be presented in future publications.

Development of Survey Instrument

The survey instrument incorporated three common theories used in this field by experts in adolescent sexual behavior; The Health Belief Model [57,58,59], Self-Efficacy Theory [59,60], and Reference Group-Based Social Influence Theory [45,59,61]. The Health Belief Model, developed from psychosocial theories of health beliefs, has been used most often to understand factors associated with the adoption of preventive behaviors. In the Health Belief Model individuals who believe they are susceptible to the target disease (AIDS), that the disease is serious, and that the benefits of engaging in preventive actions outweigh the barriers, are considered more likely to adopt preventive behaviors than are individuals not holding these beliefs. Additionally, this model has been useful in prior studies of adolescent condom use.[46,57] The Self-Efficacy Theory posits that a high appraisal of one's self competence pertaining to preventive behaviors generates the self-confidence necessary for the successful completion of the task. The questions based on this theory were designed to measure the students' level of confidence in their ability to

prevent HIV infection. Finally, the Reference Group-Based Social Influence Theory proposes that behavioral norms (beliefs about how people typically act) and values (beliefs about how people ought to act) are integrated to generate a normative to which individuals aspire to conform. The development of the normative standard influences the adoption and maintenance of preventive behaviors. These models were used as a theoretical framework to conceptualize questions for inclusion in the survey.

The 98-item questionnaire included questions that had been validated by other researchers, [62,63,64,65,66] and a minority of questions that were created by the primary investigator. (See Appendix 1) In addition to the above theories the questionnaire assessed these topic areas: (1) demographic information, (2) knowledge, attitudes, and beliefs regarding HIV disease and sexuality, (3) sexual activity, alcohol, cigarette, and drug use in their lifetime and in the past thirty days (4) history of sexual and physical abuse and (5) psychological indicators e.g. coping, stressors, and self-esteem. The questionnaire was developed through consultation with experts on survey research, public school teachers, and the Director of Social Development for the New Haven Public Schools. It was rigorously evaluated for content, sensitivity, and merit. Focus group interviews were conducted with twenty-five randomly selected high-school students. These interviews allowed us to refine the questionnaire and assure the validity of the instrument for our population.

Participants

Ninety students, aged 13-17, enrolled in three city-run educational programs completed the survey instrument. The three educational sites formed the basis of the three

cohorts. These cohorts were chosen in an effort to reach a diverse range of New Haven adolescents.

Cohort I – Site 1 – Pregnant Adolescents

The only independent school in New Haven for pregnant adolescents was selected for this study. It is operated by the New Haven Board of Education and follows the regular school calendar, schedule, and curriculum. In addition to educational classes, social and medical services are provided. The staff includes teachers, nurses, and social workers, and their goal is to help the students plan concretely for eventual self-sufficiency. Recent research on this school has shown that it has improved life outcomes for adolescent mothers and their children by preventing rapid, repeated childbearing.[76,77] The students in this specialized school for pregnant adolescents represent a cohort of pregnant teenage girls. Forty-one students were enrolled in the school, but only the thirty-four antepartum students were required to be in the classroom consistently. The other seven girls were postpartum and were allowed to bring their babies to school. The postpartum students were in a separate area of the building and their classroom time was more flexible, so they were never included in the study. Therefore, thirty-four students attempted the survey, and of these twenty-six girls completed the survey, resulting in a response rate of seventy-six percent. Seven surveys were incomplete secondary to absences due to deliveries, labor pains, and illness. One survey was not completed due to the student's poor comprehension of English.

Cohort II- Site 2 – Incarcerated Adolescents

The second educational setting was the classrooms contained with in the correctional facility, which is the only correctional facility for juvenile offenders in New

Haven. Three teachers were involved in developing the courses and curriculum at this site. This educational setting can best be described as an open classroom; without grade level assignments, but each student is encouraged to work at their own level. This cohort was intended to represent truant students who may have dropped out of school. While in the correctional facility all children less than sixteen years old were required to attend the school on the premises. During the course of this study there were thirty-five minors detained at the correctional facility, but four were older than sixteen and refused to attend class. Therefore thirty-one students attempted the survey and twenty-nine completed the survey, resulting in a response rate of ninety-four percent. There was one refusal and one child was excluded because of his young age (11 years old) and poor reading ability.

Cohort III- Site 3- Public High School

One of the two large general public high schools in New Haven was selected for this study. The students from this public high school were intended to represent a cohort of students who remained in a traditional public high school setting. The entire social development class of tenth graders agreed to participate in the survey. The social development class is part of the curriculum that emphasizes life skills, AIDS education, and substance use prevention. (See Fig.2) There were thirty-five students enrolled in this program, and over several days all of the students completed this survey, resulting in a response rate of one hundred percent.

All students present on the day of testing were included. Several days before the survey was administered students were given letters to take home informing parents about the study. If parents did not want their child to participate they were required to return a signed letter indicating their decision. None of the students returned signed letters.

The response rate among all three cohorts was exceptionally high, with only one student refusing to participate. All data presented are based on self -report. Given the delicate nature of the subject matter many efforts were made to build a trusting relationship between the primary investigator and subjects, in order to maximize accurate self -disclosure. First and foremost, confidentiality and anonymity were guaranteed through the use of code numbers rather than names. Secondly, only the primary investigator administered the surveys, therefore continuity between the subjects, their teacher, and the investigator existed. Thirdly, the survey was designed so that the most sensitive questions about sexual activity were found in the latter half. By putting questions about goals and coping skills in the first half we allowed time for the subjects to become comfortable with the survey. Also, students were seated to allow maximum privacy and to allow them to respond unobserved by other students or members of the research team. Lastly, the survey was pilot tested in focus groups composed of students that were representative of the sample. Through this process we were able to restructure the survey so that it was clear, sensitive, and without value judgments. Additionally, the subjects were aware that they were volunteers and were free to not complete the survey without any repercussions from the investigator or their teacher. [67,68]

The study design and survey instrument were approved by the Human Investigation Committee at Yale University. The survey instrument was administered by the lead investigator over two class periods, taking approximately thirty minutes each day. Additionally, at the beginning of the session the purpose of the study was explained and oral consent was obtained from all participants.

Measures

Condom Use - The main dependent variable was assessed by two questions: "When you have sex do you (or your partner) use condoms?" with a response scale consisting of always, usually, sometimes, never, not applicable. The second question asked, "The last time you had sex did you (or your partner) use a condom?" with possible responses being no, yes, not sure, not applicable. These two questions were intended to assess pattern and consistency of condom use.

Sexual Communication- Assessed by three questions intended to measure the participants previous experience with initiating a discussion with a partner about safer sex.

AIDS Knowledge- Subjects level of knowledge about AIDS and the transmission and prevention of HIV infection was assessed through twelve true or false questions. The scale was derived from the CDC's National Center for Health Statistics National Health Interview Survey and an AIDS questionnaire administered by a local health clinic.[45,61,62,64] A scale was derived by summing correct responses. AIDS knowledge categories were determined by using the median to decide high and low scores. The internal consistency (alpha coefficient) of the scale was 0.63.

Rosenberg Self-Esteem Scale- 10 item scale that measures overall feelings of satisfaction with self, including statements such as "On the whole you are satisfied with yourself" and "At times, you think you are no good at all". A Likert-type scale was used with response categories ranging from 1("strongly disagree") to 5("strongly agree"). The score was calculated by unweighted addition of the ten items. Higher scores indicate higher self-esteem. The internal consistency of the scale was 0.77.[63,70]

Health Locus of Control Scale (HLOC)- Seven items from the HLOC were modified to make them pertinent to AIDS. The scale measures perceived sense of control over the acquisition of HIV/AIDS in the three dimensions of the original measure; internal control (sample item: "You are in control of whether or not you get AIDS"), chance/luck external control ("If you get AIDS it's a matter of fate"), and powerful others external control ("Whether you get AIDS depends on what your sex partner wants to do.") Respondents marked items using 5 point Likert scale ratings from strongly disagree (1) to strongly agree (5). The score was calculated by addition of the seven items.[63,71,72]

Stress- A 24-item scale was used to assess the level of stress the respondents experienced in various situations and relationships over the past year. Respondents marked items using a 5-point scale ranging from not at all (1) to always (5). A score was calculated by addition of the 24 items. High scorers experienced higher degrees of stress in the past year.[63,73]

Coping- A 20 item scale consisting of a mix of 10 active coping mechanisms and 10 passive coping mechanisms was used to assess the mechanisms used by the respondents to deal with stress. An active coping score was derived by addition of the ten items, the same method was used to calculate a passive score. [63,74,75]

Data Analysis

Analysis was conducted separately for each site. An alpha level of .05 was used, and when significant site differences emerged additional analysis was done to elucidate the role of gender. Bivariate tests evaluated whether individual factors were associated with each site. Bivariate analysis was also used to determine correlations with condom use

behavior at each site. In the future, we will use these significant associations to develop a multivariate logistic model to predict condom use behavior at each site.

Results

Study Sample- (Table 1)

The sample size was 90 students. Site 1, the school for pregnant adolescents, only included females. Site 2, the correctional facility, had a significantly higher male population, which reflects national trends. Site 3, the traditional high school, came closest to having an equal balance of men and women. The males at site 3 were significantly older, and the females at site 2 were significantly younger. The majority were African-American and Latino, which accurately reflected the public school population in the area from which students were sampled. There are no significant differences in marital status of parents, however greater proportions of children at site 3 reside in homes in which their parents are married. Lastly, the children at site 2 report the highest rates of relocating in the past year, this is a significant difference among the female students.

Cigarette Use- (Table 2)

There are significant differences between the sites in regard to cigarette use. The general trend is that students at site 3 smoke less than either of the other sites. Also, although 31% of women at site 1 have smoked greater than a few cigarettes, implying a more regular habit, they appear to have substantially curtailed their smoking during pregnancy, with only 8% reporting smoking more than 2 cigarettes per day.

Alcohol Use- (Table 3)

In Table 3, we see that males from site 2 and 3 do not differ significantly in their alcohol - related behavior. However, the trend is that males in the traditional high school drink less and are less likely to participate in behaviors under the influence of alcohol, than males in the correctional facility. However, there were significant differences among

the female students . The pregnant students had the lowest rate of alcohol use in the last thirty days and the lowest rate of sexual intercourse after drinking.

Drug Use- (Table 4)

For this population of youth drug use was limited to marijuana. Only 2 males and 1 female from site 2 admitted to lifetime use of cocaine (1-2 times). No use of heroin, pills, or inhalants were reported at any site. Again, the lowest rates of use were reported by the pregnant adolescents at site 1. The males at site 2 and 3 shared similar drug use behavior, but males at site 2 reported significantly higher frequency of marijuana use (33% used marijuana >30 times in the past month).

Truancy – (Table 5)

Table 5 shows that the majority of children at the correctional facility participate in truant and violent behavior. Not only are the behaviors more prevalent at site 2, they are significantly more frequent than at the other sites.

AIDS Knowledge- (Table 6)

The students did phenomenally well on the AIDS knowledge measure. There were no significant differences between sites, and the mean number of correct responses was 10.2/12.

AIDS Risk Behavior- (Table 7)

Almost 90% of the sample is sexually active, and Table 7 shows that the age of first coitus differs significantly between sites and gender. The males at site 2 and 3 share similar condom use behavior and number of partners in the last 6 months. The females showed significant differences between sites because the pregnant adolescents reported very low rates of condom use with their partners. For the sample as a whole, 52% "know

people who are HIV+, sick with AIDS, or who have died from AIDS." Yet, despite this knowledge, and their reported behaviors, 51% feel that "most people like me have ... no chance of catching the AIDS virus." Additionally, no one reported difficulty in obtaining condoms; they all reported that it was "very easy" or "sort of easy" for them to obtain a condom.

Educational Goals – (Table 8)

Table 8 chronicles their educational attainments and goals. The males at site 2 and 3 were very similar, except that the vast majority of males at site 3 rated their chances of graduating from high school as very high (65% vs. 24% at site 2). In general, the females in the traditional high school had significantly higher educational goals, with 100% of them wanting to complete college.

Site Specific Correlates of Condom Use-

Site 1 has the lowest rate of condom use, with 29% reporting that they never use a condom. The vast majority of the girls feel that whether or not they get AIDS is determined by what their partner wants to do.

At site 2, the correctional facility, although they were the youngest they reported the highest rate of cigarette, alcohol, marijuana, and most importantly condom use. 47% of the males and 63% of the females report that they always use condoms. At this site consistent condom use was correlated with a positive attitude toward themselves ($p=.001$), a belief that they could avoid AIDS if they took precautionary steps ($p=.003$), and carrying a condom with them "just in case" ($p=.001$).

At site 3, the traditional high school, the majority of students used condoms consistently or abstained from sexual intercourse. Those who did not use condoms consistently were more likely to drink (p=.042), reported higher levels of stress (p=.014), lower self-esteem (p=.073), and were more likely to feel that their sexual partners desires determined whether or not they were infected with HIV (p=.046).

General Psychological Indicators

The males at site 2 and 3 exhibited similar coping abilities, similar levels of self-efficacy, and similar scores on the health locus of control scale. Suprisingly, they also reported similar levels of stress, with fifty percent of each group classified in the high stress level. The only significant difference is that 90% of males at the traditional high school reported high levels of self-esteem, compared to 52% of the males in the correctional facility (p=.008).

The female respondents at each site had similar coping abilities, similar levels of self-efficacy, and similar scores on the health locus of control scale. However, there was a trend of higher self-efficacy scores found among the female students in the traditional high school. Also looking at one item, instead of the composite score, reveals that 100% of the girls at site 3 strongly agreed with the statement, "You could refuse sex if your partner did not want to use a condom." versus 65% at site 1 and 63% at site 2 (p=.057). The same effect is seen with the self-esteem scale, while the composite score is similar between sites their response to "On the whole, you are satisfied with yourself" shows that 74% of girls at site 3 strongly agree with this statement compared to 12% at site 1 and 25% at site 2

(p=.005). Suprisingly, the females at each site reported similar levels of stress, with 70% of the pregnant adolescents classified as low stress level.

Physical and Sexual Abuse

24% of the boys in the correctional facilities, compared to 0% of the boys in the traditional high school reported that they were sexually molested by an adult outside of their family (p=.020). Additionally, 30% of the boys in the correctional facility reported physical abuse by a family member that resulted in marks or bruises (p=.045).

63% of the female students in the correctional facility report being forced to have sex (p=.002), 38% of them have been sexually abused by a family member, and 50% have been physically abused by a family member. There were no significant differences between sites to the question "Has any adult or older person outside the family ever touched you sexually against your wishes or forced you to touch them sexually?" 38% at site 1, 35% at site 2, and 13% at site 3 responded yes.

Table 1

Demographic characteristics of the sample

	Sex #	Age (mean)	Race	Marital status of parents	#times moved in past year
Site =1					
Male					
Female	26	16	72% African-American 4% White 24% Latino	20% married 16% divorced 36% never married 20% separated 4% widowed 4% unknown	56% 0 times 16% 1 time 12% 2 times 16% >3 times
Site =2			30% African-American 20% White	25% married 25% divorced	35% 0 times 40% 1 time
Male	21	15	35% Latino 10% Biracial 5% Other	15% never married 15% separated 5% widowed 15% unknown	20% 2 times 5% >3 times
Female	8	14.5	38% African-American 12% White 25% Latino 25% Biracial	25% married 38% divorced 0% never married 37% separated 0% widowed 0% unknown	0% 0 times 50% 1 time 38% 2 times 12% >3 times
Site=3			65% African-American 15% White	45% married 25% divorced	65% 0 times 15% 1 time
Male	20	15.7	15% Latino 5% Native American	10% never married 10% separated 0% widowed 10% unknown	10% 2 times 10% >3 times
Female	15	15.1	53% African-American 7% White 27% Latino 13% Biracial	33% married 27% divorced 20% never married 13% separated 7% widowed 0% unknown	60% 0 times 27% 1 time 0% 2 times 13% >3 times
P values					
Male		.009*	.139	.740	.167
Female		.027*	.293	.595	.037*

* significance level $p<.05$

Site 1= Pregnant Adolescents
Site 2= Correctional Facility
Site 3= Traditional High School

Table 2

Comparison of cigarette use amongst the three sites.

	Have you ever smoked cigarettes?	During the past 30 days, on how many days did you smoke?	During the past 30 days, on the days you smoked how many cigarettes did you smoke per day?	How many of your friends smoke cigarettes on a pretty regular basis (3+ times/week)
site= 1				
male	N/A	N/A	N/A	N/A
female	19% never 15% once 35% few times 31 >few times	73% 0 days 23% 1-5 days 4% 6-30 days	73% 1 did not smoke 19% 1cig/day 8% 2-5 cig/day	8% none 58% some 34% most
site =2				
male	19% few times 81% >few times	15% 0 days 20% 1-5 days 65% 6-30 days	15% 1 did not smoke 5% 1 cig/day 20% 2-5 cig/day 35% 6-10 cig/day 25% 11-20 cig/day	5% none 38% some 57% most
female	20% never 15% once 30% few times 35% > few times	13% 0 days 25% 1-5 days 62% 6-30 days	13% 1 did not smoke 0% 1 cig/day 12% 2-5 cig/day 25% 6-10 cig/day 37% 11-20 cig/day 13% >20 cig/day	0% none 25% some 75% most
site 3				
male	20% never 15% once 30% few times 35% >few times	65% 0 days 25% 1-5 days 10% 6-30 days	60% 1 did not smoke 15% 1 cig/day 20% 2-5 cig/day 0% 6-10 cig/day 5% 11-20 cig/day	20% none 65% some 15% most
female	40% never 7% once 40% few 13% >few times	80% 0 days 20% 1-5 days 0% 6-30 days	80% 1 did not smoke 13% 1cig/day 7% 2-5 cig/day	13% none 80% some 7% most
P values				
male	.009*	.001*	.003*	.015*
female	.013*	.001*	.001*	.023*

* significance level p<.05
site 1=pregnant adolescents
site2= correctional facility
site3= traditional high school

Table 3

Comparison of alcohol use amongst the three sites.

	During the past 30 days, how many times (if any) have you had a drink of beer, wine cooler, etc.?	In the past 30 days, how many times (if any) have you been drunk or very high from alcohol?	In the past 30 days how many times (if any) have you had sexual intercourse after drinking alcohol?
site=1			
male	N/A	N/A	N/A
female	92% 0 times 8% 1-9 times	96% 0 times 4% 1-5 times	92% 0 times 8% 1-5 times
site=2			
male	29% 0 times 33% 1-9 times 24% 10-19 times 14% >30 times	52% 0 times 19% 1-5 times 29% >10 times	50% 0 times 20% 1-5 times 15% 6-9 times 10% >10 times 5% N/A
female	25% 0 times 63% 1-9 times 12% 10-19 times	38% 0 times 37% 1-5 times 25% 6-9 times	38% 0 times 62% 1-5 times
site=3			
male	45% 0 times 50% 1-9 times 5% >30 times	65% 0 times 30% 1-5 times 5% 6-9 times	90% 0 times 5% 1-5 times 5% N/A
female	67% 0 times 33% 1-9 times	80% 0 times 20% 1-5 times	74% 0 times 13% 1-5 times 13% 6-9 times
p values			
male	.068	.056	.059
female	.002*	.001*	.002*

*significance level p<.05
Site 1= pregnant adolescents
Site 2 = correctional facility
Site 3= traditional high school

Table 4

Comparison of drug use amongst the three sites.

	In the past 30 days, how many times (if any) have you used marijuana?	In the past 30 days, how many times (if any) have you been high from drugs?	In the past 30 days, how many times (if any) have you had sex after using drugs?
Site 1			
Male	N/A	N/A	N/A
Female	96% 0 times 4% >30 times	96% 0 times 4% >30 times	96% 0 times 4% 1-5 times
Site 2			
Male	33% 0 times 14% 1-9 times 14% 10-19 times 5% 20-29 times 33% >30 times	48% 0 times 10% 1-5 times 4% 6-9 times 38% >10 times	70% 0 times 10% 1-5 times 0% 6-9 times 15% >10 times 5% N/A
Female	25% 0 times 38% 1-9 times 6% 10-19 times 12% 20-29 times 25% >30 times	38% 0 times 25% 1-5 times 0% 6-9 times 37% >10 times	50% 0 times 25% 1-5 times 13% 6-9 times 12% >10 times
Site 3			
Male	45% 0 times 40% 1-9 times 10% 10-19 times 5% 20-29 times 0% >30 times	75% 0 times 15% 1-5 times 5% 6-9 times 5% >10 times	75% 0 times 15% 1-5 times 5% 6-9 times 0% >10 times 5% N/A
Female	67% 0 times 20% 1-9 times 13% 10-19 times 0% 20-29 times 0% >30 times	67% 0 times 20% 1-5 times 13% 6-9 times 0% >10 times	74% 0 times 13% 1-5 times 0% 6-9 times 0% >10 times 13% N/A
P values			
Male	.046*	.085	.375
Female	.001*	.001*	.013*

* significance level $p<.05$
Site 1= pregnant adolescents
Site 2 = correctional facility
Site 3 = traditional high school

TABLE 5

Prevalence of truant behaviors amongst the three sites.

	been suspended from school?	been involved in a gang or posse fight?	lied to your parents about where you have been or who you were with?	stayed out all night without permission?	been arrested by the police?	sold drugs?
site=1						
male	N/A	N/A	N/A	N/A	N/A	N/A
female	85% 0 times 15% 1-5time	89% 0 times 11% 1-5 times	85% 0 times 15% 1-5 times	92% 0 times 8% 1-5 times	88% 0 times 12% 1-5 times	100% 0 times
site=2						
male	42% 0 times 38% 1-5 times 10% 6-9 times 10% 10+times	52% 0 times 24% 1-5 times 4% 6-9 times 20% 10+ times	43% 0 times 38% 1-5 times 5% 6-9 times 14% 10+ times	43% 0 times 20% 1-5 times 14% 6-9 times 23% 10+ times	19% 0 times 52% 1-5 times 10% 6-9 times 19% 10+ times	48% 0 times 24% 1-5 times 0% 6-9 times 28% 10+ times
female	38% 0 times 38% 1-5 times 12% 6-9 times 12% 10+times	50% 0 times 25% 1-5 times 0% 6-9 times 25% 10+times	25% 0 times 25% 1-5 times 12% 6-9 times 38% 10+times	0% 0 times 25% 1-5 times 25% 6-9 times 50% 10+times	13% 0 times 62% 1-5 times 0% 6-9 times 25% 10+times	12% 0 times 38% 1-5 times 12% 6-9 times 38% 10+times
site=3						
male	100% 0 times	90% 0 times 10% 1-5 times	60% 0 times 40% 1-5 times	85% 0 times 15% 1-5 times	85% 0 times 15% 1-5 times	80% 0 times 20% 1-5 times
female	93% 0 times 7% 1-5 times	87% 0 times 13% 1-5 times	60% 0 times 33% 1-5 times 0% 6-9 times 7% 10+times	73% 0 times 20% 1-5 times 0% 6-9 times 7% 10+ times	93% 0 times 7% 1-5 times	87% 0 times 7% 1-5 times 0% 6-9 times 6% 10+times
	p values male =.001 female= .016	p values male=.047 female=.016	p values male=.221 female=.002	p values male=.014 female=.001	p values male=.001 female=.001	p values male=.024 female=.001

*significance level $p<.05$
site 1 = pregnant adolescents
site 2 = correctional facility
site 3 = traditional high school

Table 6

Percentage of sample answering AIDS knowledge items correctly.

Question	% answering correctly
AIDS is caused by a virus	82%
AIDS can be prevented	81%
You can get AIDS by going to school or work with someone who has it	97%
AIDS can be passed from mother to child during pregnancy	93%
There is a cure for AIDS	74%
An active and healthy person can have the AIDS virus and infect other people	77%
There are medical treatments for people with AIDS	77%
You can know by looking at someone if s/he has the AIDS virus	92%
You can get the AIDS virus by having sex once without a condom	87%
Teenagers are too young to get AIDS	90%
Condoms lower the risk of catching the the AIDS virus	88%
A person can have the AIDS virus for years and infect other people before s/he gets sick	83%

mean number correct = 10.2/12, 85%

Table 7

Comparison of AIDS risk behaviors amongst the three sites.

	Have you ever had sex?	How old were you the first time you had sex? (mean age)	How many sexual partners have you had in the past 6 months? (mean #)	When you have sex do you (or your partner) use condoms?	The last time you had sex, did you (or your partner) use a condom?
Site= 1					
Male	N/A	N/A	N/A	N/A	N/A
Female	100% Yes	13.9 years old	1.3	4% always 67% usually/ sometimes 29% never	92% no/not sure 8% yes
Site=2					
Male	5% No 95% Yes	11.2 years old	4.0	47% always 38% usually/ sometimes 10% never 4% N/A	38% no/not sure 57% yes 5% N/A
Female	100% Yes	11.3 years old	2.3	63% always 37% usually/ sometimes	13% no/not sure 87% yes
Site=3					
Male	10% No 90% Yes	11.4 years old	2.9	45% always 20% usually/ sometimes 5% never 30% N/A	16% no/not sure 53% yes 31% N/A
Female	47% No 53% Yes	14.4 years old	1.0	53% always 27% usually/ sometimes 0% never 20% N/A	20% no/not sure 60% yes 20% N/A
P values					
Male	.520	.173	.438	.153	.051
Female	.001*	.053*	.05*	.001*	.001*

Significance level $p<.05$
Site 1= pregnant adolescents
Site 2= correctional facility
Site 3 = traditional high school

Table 8

Comparison of educational goals amongst the three sites.

	How important is it for you to be considered a good student by your teacher?	How important is it for you to get at least a B average this year?	Eventually how much education do you want to get?	What are the chances that you will graduate from high school?
Site=1				
Male	N/A	N/A	N/A	N/A
Female	8% not too important 32% somewhat imp. 60% very important	4% not too important 8% somewhat imp. 88% very important	32%complete high school 16% vocational training 4% some college 48% complete college	20% 50/50 28% high 52% very high
Site=2				
Male	14% not too important 57% somewhat imp. 29% very important	5% not too important 9% somewhat imp. 86% very important	14%complete high school 9% vocational training 52% some college 14% military 9% complete college	4% very low 4% low 38% 50/50 29% high 24% very high
Female	38% not too important 25% somewhat imp. 38% very important	0% not too important 62% somewhat imp. 38% very important	25%complete high school 12% vocational training 25% some college 38% complete college	38% 50/50 50% high 12% very high
Site=3				
Male	10% not too important 45% somewhat imp. 45% very important	5% not too important 20% somewhat imp. 75% very important	15%complete high school 5% vocational training 65% some college 10% military 5% complete college	10% 50/50 25% high 65% very high
Female	0% not too important 20% somewhat imp. 80% very important	0% not too important 13% somewhat imp. 87% very important	100% complete college	13% 50/50 13% high 74% very high
P values				
Male	.547	.633	.908	.056
Female	.052	.011*	.007*	.099

Significance level $p<.05$
Site 1= pregnant adolescentis
Site 2 = correctional facility
Site 3 = traditional high school

Discussion

This analysis describes AIDS risk behaviors and correlates in a diverse group of urban adolescents from three different educational settings. Our results confirm previous findings among high-risk youths regarding knowledge, attitudes, and behaviors concerning HIV. However, our research adds in-depth information with respect to the unique psychosocial correlates of high-risk behavior found at each site.

Our original hypothesis can be viewed as seeking to answer two questions: 1) did the sites differ? and 2) did these differences predict condom use? The answer to the first question is a resounding yes. At site 1, the school for pregnant adolescents, these girls had significantly low levels of cigarette, alcohol, drug, and condom use. Although site 2 was the youngest cohort they had the highest rate of high risk behaviors, including the most sexual partners in the past six months. These were also the children who suffered the most physical and sexual abuse from family and non-family members. To their credit, they also reported the highest rate of condom usage. The students at site 3 tended to have higher self-esteem, better coping skills, and higher educational aspirations.

The second question proved to be more difficult to answer. Although some correlates of condom use were discussed in the results section, the majority of the bivariate analysis was not significant, possibly due to the small sample size. Therefore, larger studies need to be done in order to better understand the predictors of condom use in an urban minority population.

This study highlights the necessity of targeted, appropriate, culturally sensitive interventions. At site 1, the educational intervention would need to stress sexual communication. The majority of these students do not report any communication with

their partners about previous relationships, STD's, or the use of condoms. Many of these girls expressed the fact that they felt protected because they were involved in monogamous relationships. The need for sexual communication skills for female adolescents is strongly supported in the literature. [50,78] This issue is fraught with difficulty because it deals with issues of love and trust, but it must be effectively addressed in order to increase AIDS preventive behavior at site 1.

For the adolescents in the correctional facility who experienced high rates of physical and sexual abuse and residential mobility, their primary goal is to find a safe place to live. For this population we would have to address their issues of safety and self-esteem before we could expect them to practice safe sex. Site 2 brings into sharper focus several issues. The fact that so many of the sample report histories of physical and sexual abuse and high rates of substance use and other high risk behaviors is troubling, but somewhat expected. Hernandez et al., found that sexual and physical abuse were important moderating factors in the risk-taking behaviors of male adolescents, and furthermore, that abuse was predictive of serious drinking problems.[66] Boyer and Fine found that sexually victimized teenagers began intercourse earlier, and were more likely to have used drugs and alcohol.[79] Our results support these previous findings, but what is particularly troubling is that many people within the public school system did not want those questions to be asked due to the sensitive nature of the topic. What this and previous research proves is that questions about physical and sexual abuse need to be asked – by parents, teachers, counselors, physicians, etc. because these children need services early in order to prevent or modify the deleterious consequences of abuse.

Suprisingly, at site 3, the males had similar levels of drinking, marijuana use, and multiple partners as incarcerated males, yet their condom usage was proportionately lower. Interventions at site 3 should focus on decreasing substance use and increasing their awareness of susceptibility. Any intervention should also encourage their high self-esteem, active coping skills, and high levels of abstinence. While this study highlights the complexities of influencing the behaviors of urban adolescents, it does offer rays of hope. For example, among the pregnant adolescents we found the lowest rates of current drug, alcohol, and cigarette use, despite the fact that many of the young women reported high rates of use before pregnancy. We credit their educational environment with their decrease in unhealthy behaviors. At this school they are treated holistically- educational, social, and medical issues are addressed in one-on-one and small group formats. Once their other issues are addressed these young women prove that they can learn, and that what they learn can have a positive impact on their future.

This study found higher levels of consistent condom use than previously reported. About half of the males and half of the non-pregnant females reported consistent condom use and use of a condom at last coitus. Previous research among urban male adolescents report a rate of 10-31%.[46,68] This is good news and it could be due to a number of reasons. Because of school based clinics, community health centers, and outreach workers this sample of adolescents reported no difficulty in obtaining condoms. Possibly, the ease in attainment increased condom usage. Secondly, it is important to note the high level of AIDS knowledge found at all three sites. Perhaps, after seven years of school based AIDS education and public campaigns some of this knowledge may have influenced their behavior. Lastly, these children are intimately affected by AIDS; greater than 50% know

someone with AIDS. That "someone" may be their mother, father, older sibling, or neighbor. Therefore, knowledge gained from this first hand experience with AIDS may also be changing their behavior. However, the battle is not over because the other fifty percent of these sexually active adolescents are not using condoms consistently. Reasons given for not using condoms include: "I love him, he doesn't cheat on me", "I've known her for so long", "It (sex) just happened", and "We wanted to have a baby". These reasons speak volumes about adolescents and human relations. Increasing condom use will require more than condom availability and safe sex knowledge, it must be part of a larger plan to demonstrate to these adolescents that their lives have meaning and value.

Adolescence should be filled with trivial worries about the "right" clothes, homecoming, and trigonometry. Yet, as can be seen by the results of this analysis urban adolescents are starting to have sex at prepubescent ages, have multiple sex partners, and engage in many problematic behaviors. It is as if all the opportunities for these urban adolescents have disappeared and all that remains are the risks. The rapid spread of HIV continues to claim many lives. In the absence of a vaccine or cure, behavior change is our only weapon against this epidemic. Although this study was not large enough to accurately assess all of the correlates of condom use it did discover many interesting findings which can be used to lead future research and interventions.

REFERENCES

1. Washington H. HIV among African-Americans. *Harvard AIDS Review.* Spring/Summer 1996; 2-6.
2. Surgeon General's report on acquired immune deficiency syndrome. Washington, DC: United States Department of Health and Human Services, 1986.
3. Centers for Disease Control. *HIV/AIDS Surveillance Report.* Atlanta, GA: Division of HIV/AIDS, Center for Infectious Diseases, 1992.
4. D'Angelo LJ, Getson PR, Luban NLC, Gayle HD. Human immunodeficiency virus infection in urban adolescents: can we predict who is at risk? *Pediatrics* 1991; 88:982-6
5. DiClemente RJ. HIV prevention among adolescents. Chapter 10.10 in: Cohen PT, Sande MA, Volberding PA, eds. *The AIDS Knowledge Base*, 2nd edition. Little, Brown, and Company, New York, 1994.
6. Centers for Disease Control. *HIV Seroprevalence Surveys.* Atlanta, GA: Division of HIV/AIDS, Center for Infectious Diseases, 1993
7. Overby KJ, Kegeles SM. The impact of AIDS on an urban population of high-risk female minority adolescents: Implications for intervention. *Journal of Adolescent Health.* 1994;15:216-227.
8. Hein K. Adolescents at risk for HIV infection. In: DiClemente RJ, ed. *Adolescents and AIDS: A Generation at Risk.* Sage, Newbury Park, Calif.1992:3-16.
9. Centers for Disease Control. HIV/AIDS Surveillance Report. Atlanta, GA: The Centers, March 1992:1-18.
10. Romer D. et al. Social influences on the sexual behavior of youth at risk for HIV exposure. *Am J Public Health.*1994;84:977-985.
11. HIV instruction and selected HIV-risk behaviors among high school students-United States, 1988-1991. *J School Health* 1992;62:481-2.

12. Bell TA, Hein K. The adolescent and sexually transmitted diseases. In Holmes KK, Mardh P, Sparling PF, et al., eds. *Sexually transmitted diseases.* New York: McGraw-Hill, 1984. 73-84.

13. Vermund SH. Transmission of HIV-1 among adolescents and adults. Chapter 10.1 in DeVita VT, Hellman S, Rosenberg SA, eds. *AIDS: Biology, Diagnosis, Treatment and Prevention, 4th edition.* Lippincott-Raven Publishers, 1997

14. Mott FL, Haurin RJ. Linkages between sexual activity and alcohol and drug use among American adolescents. *Fam Plan Perspec* 1988; 20:128-36.

15. Pandina RJ, Schuele J. Psychosocial correlates of adolescent alcohol and drug use. *Journal of Studies of Alcohol* 1983;44:950-973.

16. Ensminger ME. Adolescent sexual behavior as it relates to other transition behaviors in youth. Chapter 2 in: Hofferth SL, Hayes CD, eds. *Risking the future: Adolescent sexuality, pregnancy, and childbearing.* Vol.II. working papers and statistical appendices. Washington DC: National Academy Press, 36-55

17. Stay Safe Curriculum, Planned Parenthood

18. Califano JA. The wrong way to stay slim. *NEJM* 1995; 333:1214-1216.

19. Johnston LD, O'Malley PM, Bachman JG. National survey results on drug use from monitoring the future survey, 1975-1992. Vol.1, Secondary school students. National Institute on Drug Abuse, US Department of Health and Human Services, NIH Publication 1993.

20. CDC. HIV instruction and selected HIV-risk behaviors among high school students-United States, 1989-1991. *MMWR* 20 November 1992; 41:866-8

21. Fadem B. *Behavioral Science* 2nd edition. Harwal Publishing, Philadelphia 1994.

22. Long J, Cobb N. *Aging and Development.* Wadsworth Press, New York 1985.

23. Anderson JE, Kann L, Holtzman D et al. HIV/AIDS knowledge and sexual behavior among high school students. *Fam Plan Perspec* 1990;22:252-255.

24. Ewer P, Gibbs JO. Relationship with putative father and use of contraception in a

population of Black ghetto adolescent mothers. *Public Health Reports* 1975;90:417-423.

25. Rotheram, MJ. Evaluation of suicide risk among runaways. In Lann I, Mosciwiki E. eds. *Strategies for studying suicide and suicide risk.* A conference and publication of the National Institute of Mental Health, 1987.

26. Rotherman-Borus MJ, Koopman C. AIDS and adolescents. *Journal of Primary Prevention.* 1991;12:65-82.

27. Newcomer SF, Gilbert M, Udry JR. Perceived and actual same sex peer behavior as determinants of adolescent sexual behavior. Paper presented at the annual meeting of the American Psychological Association, Toronto Aug.1980.

28. Hofferth SL. Factors affecting initiation of sexual intercourse Ch.1 in : Hofferth SL and Hayes CD, eds. *Risking the future: Adolescent sexuality, pregnancy, and childbearing.* VolII. Working papers and statistical appendices, Washington DC:National Academy Press, 1987;7-35.

29. Moss N. Behavioral risks for HIV in adolescents. *Acta Paediatr.* 1994;suppl 400:81-7.

30. Porter K. HIV disease and the African-American community. In: Cohen P.T. and Sande M.A., ed. *The AIDS Knowledge Base.* New York, Little, Brown, and Company; 1994: 1-9.

31. Turner CF, Miller HG, Moses LE, eds. AIDS sexual behavior and intravenous drug use. Washington, DC: National Academy Press, 1989.

32. Friedman S, Sotheran JL, Abdul-Quadar A, et al. The AIDS epidemic among blacks and Hispanics. *Milbank Q* 1987; 65:455-99.

33. *AIDS in Connecticut: 1994 Annual Surveillance Report.* AIDS Division, State of Connecticut- Department of Public Health and Addiction Services.

34. Jemmot JB, Jemmott LS. Interventions for Adolescents in Community Settings. In: DiClemente RJ, Peterson JL ed. *Preventing AIDS: Theories and Methods of*

Behavioral Interventions. New York, Plenum Press, 1994.

35. St. Louis ME, Conway GA, et al. Human Immunodeficiency Virus Infection in Disadvantaged Adolescents: Findings from the US Job Corps. *JAMA.* 1991;266:2387-2391.
36. Coker AL, Richter DL, et al. Correlates and Consequences of Early Initiation of Sexual Intercourse. *J Sch Health.* 1994;64:372-377.
37. Zelnik M, Shah FK. First Intercourse Among Young Americans. *Fam Plan Persp.* Mar/Apr 1983.
38. Clark SD, Zabin LS, Hardy JB. Sex, Contraception and Parenthood: Experience and Attitudes Among Urban Black Young Men. *Fam Plan Persp.* Mar/Apr. 1984.
39. Centers for Disease Control. Premarital sexual experience among adolescent women- US, 1970-1988. *MMWR.* 1991;39:929-932.
40. Connecticut Department of Public Health, AIDS Epidemiology Unit, STD statistics for 1994.
41. Hayes, CD. *Risking the Future*, Washington, DC: National Academy Press, 1987.
42. Stanton B, Xiaoming L, et al. Sexual Practices and Intentions among Preadolescent and Early Adolescent Low-Income Urban African-Americans. *Pediatrics.* 1994; 93:966-973.
43. *Sex and America's Teenagers.* The Alan Guttmacher Institute, 1994.
44. Biglan A, Metzler CW, et al. Social and Behavioral Factors Associated with High-Risk Sexual Behavior Among Adolescents. *J of Behavioral Medicine.* 1990;13:245-260.
45. Walter HJ, Vaughan RD, et al. Factors associated with AIDS risk behaviors among high school students in an AIDS epicenter. *Am J Public Health.* 1992;82:528-532.
46. Hingson RW, Strunin L, Berlin B, Heeren T. Beliefs about AIDS, Use of Alcohol and Drugs, and Unprotected Sex among Massachusetts Adolescents. *Am J Public Health.* 1990;80:295-299.

47. Catania JA, Coates TJ, Greenblatt RM et al. Predictors of Condom Use and Multiple Partnered Sex among Sexually-Active Adolescent Women: Implications for AIDS-Related Health Interventions. *The Journal of Sex Research.* 1989;26:514-524.

48. Brown LK, DiClemente RJ, Park T. Predictors of Condom Use in Sexually Active Adolescents. *J Adol Health.* 1992;13:651-657.

49. Orr DP, Langefeld CD. Factors Associated with Condom Use by Sexually Active Male Adolescents at Risk for Sexually Transmitted Disease. *Pediatrics.* 1993;91:873-879.

50. Leigh BC, Morrison DM et al. Sexual Behavior of American Adolescents: Results from a U.S. National Survey. *J Adol Health.*1994;15:117-125.

51. Pendergrast RA, DuRant RH, Gaillard GL. Attitudinal and Behavioral Correlates of Condom Use in Urban Adolescent Males. *J Adol Health.*1992;13:133-139.

52. Walter HJ, Vaughan RD, Ragin DF et al. Prevalence and Correlates of AIDS-Risk Behaviors among Urban Minority High School Students. *Prev Medicine.* 1993;22:813-824.

53. Walter HJ, Vaughan RD, Cohal AT. Psychosocial Influences on Acquired Immunodeficiency Syndrome-Risk Behaviors among High School Students. *Pediatrics.*1991;88:846-852.

54. Goldman JA, Harlow LL. Self-Perception Variables that Mediate AIDS-Preventive Behavior in College Students. *Health Psychology.*1993;12:489-498.

55. Hernandez J, DiClemente RJ. Moral Reasoning and Unprotected Sex among Young Men. *J Health Education.*1992;23:347-351.

56. New Haven Board Of Education excerpt from the Social Development Project curriculum.

57. DiClemente RJ, Durbin M, Siegel D et al. Determinants of Condom Use among Junior High School Students in a Minority, Inner-City School District. *Pediatrics.* 1992;89:197-202.

58. Wyatt GE, Ashing KT. Examining HIV Interventions for African-American Women. 1995 Submitted for publication.

59. Walter HJ, Vaughan RD, Gladis MM et al. Factor Associated with AIDS-related Behavioral Intentions among High School Students in an AIDS Epicenter. *Health Education Quarterly.*1993;20:409-420.

60. Bandura A. Self-efficacy: Toward a Unifying Theory of Behavioral Change. *Psychological Review.*1977;84:191-215.

61. Fisher JD. Possible effects of reference group-based social influence on AIDS-risk behavior and AIDS prevention. *Am Psychol.* 1988;259:2428-2432.

62. Roth B. HIV Risk Assessment Questionnaire. 1991.

63. Ickovics JR, Morrill AC, Beren SE et al. Limited Effects of HIV Counseling and Testing for Women. *JAMA.* 1994;272:443-448.

64. Gentry EM, Salmon CT, Wooten KG, Jason JM. Using Indices to Differentiate Dimensions of Knowledge Regarding Modes of HIV Transmission in the U.S. Population, 1987-1989. *J Acquired Immune Deficiency Syndromes.* 1993;6:76-81.

65. Kasprow WJ, Weissberg RP, Voyce CK et al. New Haven Public Schools Social Development Project: 1991-1992 Evaluation Report.

66. Hernandez JT, Lodico M, DiClemente RJ. The effects of child abuse and race on risk-taking in male adolescents. *J National Medical Association.* 1993;85:593-597.

67. Moore S. and Rosenthal D. *Sexuality in Adolescence.* Routledge Publishing, New York, 1993.

68. Maxwell AE, Bastani R, Yan KX. AIDS risk behaviors and correlates in teenagers attending sexually tranmitted diseases clinics in Los Angeles. *Genitourinary Medicine.* 1995;71:82-87.

69. Moscicki AB, Millstein SG, Broering J, Irwin CE. Risks of human immunodeficiency virus infection among adolescents attending three diverse clinics. *J Pediatr.* 1993;122:813-20.

70. Nielsen DM., Metha A. Parental behavior and adolescent self-esteem in clinical and non-clinical samples. *Adolescence* 1994;29:525-542.

71. Kelly JA, St.Lawrence JS, Brasfield TL et al. Psychological Factors that Predict AIDS High-Risk versus AIDS Precautionary Behavior. J *Consulting and Clinical Psychology*.1990;58:117-120.

72. Wallston KA, Wallston BS, DeVellis R. Development of the Multidimensional Health Locus of Control (MHLC) Scales. *Health Education Monographs.* 1978;6:160-170.

73. Nyamathi AM, Lewis CE. Coping of African-American Women at Risk for AIDS. *Women's Health.*1991;1:53-62.

74. Lazarus RS, Folkman S. *Stress, appraisal and coping.* New York: Springer, 1984:117-80.

75. Folkman S, Lazarus RS, Gruen RJ, DeLongis A. Appraisal, Coping, Health Status, and Psychological Symptoms. *J Personality and Social Psychology.* 1986;50:571-579.

76. Seitz V, Apfel NH. Effects of a school for pregnant students on the incidence of low-birthweight deliveries. *Child Development.* 1994;65:666-676.

77. Seitz V, Apfel NH, Rosenbaum LK. Effects of an Intervention Program for Pregnant Adolescents: Educational Outcomes at Two Years Postpartum. *Am J of Community Psychology.* 1991;19:911-930.

78. Wingood GM, Hunter-Gamble D, DiClemente RJ. A Pilot Study of Sexual Communication and Negotiation among Young African-American Women: Implications for HIV Prevention. *J of Black Psychology.*1993;19:190-203.

79. Boyer D. Fine D. Sexual abuse as a Factor in Adolescent Pregnancy and Child Maltreatment. *Fam Plan Perspec.* 1992;24:4-11.

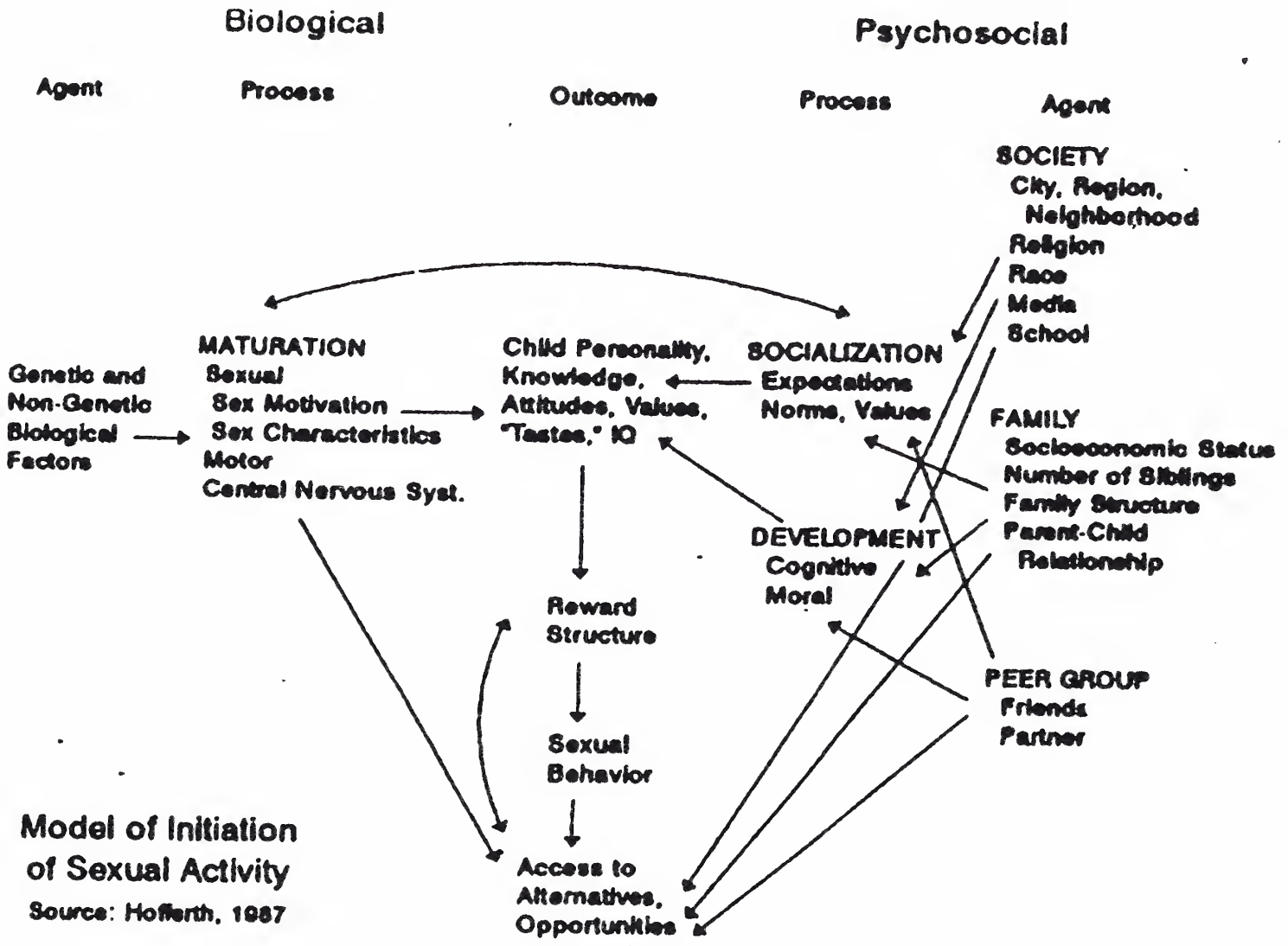

Figure 1, Ref.29

Model of initiation of sexual activity.

New Haven Social Development Project
Life Skills Programs by Grade
1995-96

K-3rd Grade

36-55 lessons taught in each grade 2 to 3 times a week for the school year

Project Charlie
- Self-awareness
- Relationships
- Decision-making
- Chemical use in society
- Violence prevention

Building Blocks: An AIDS Curriculum for Early Elementary Educators
(4-6 lessons taught with Project Charlie)
- Germs
- Communicable diseases
- Staying healthy
- Sickness & medicine
- Immune system
- Seeking health information
- Being different
- HIV/AIDS

4-5th Grade

25 lessons taught 2-3 times a week for the school year

Second Step
- Violence prevention
- Empathy training
- Impulse control
- Anger management

Human Sexuality & AIDS Education
(1-2 lessons)
- Video about puberty with question & answer sessions
- Teachers are trained to feel comfortable answering questions about sex & AIDS
- Parent meetings held on "How to Talk to Your Children About Sex & AIDS"

Substance Use Prevention
(4 Project Charlie lessons)
- Chemical use in society

6th Grade

45 lessons taught 3 times a week for two marking periods as a Life Skills Class

Social Problem Solving
- Self-control
- Stress management
- Problem solving
- Decision making
- Communication
- Violence prevention

Substance Use Prevention
- Peer pressure resistance

Human Growth and Development, AIDS Prevention, & Teen Pregnancy Prevention
- Puberty
- Reproduction
- Relationships without sex
- HIV/AIDS

7th Grade

24 lessons taught 3 times a week for one marking period as a Life Skills Class

You and Your Relationships
- Review of social problem solving
- Communication skills
- Peer relationships
- Violence prevention
- Substance use prevention
- Review of puberty, teen pregnancy, & AIDS prevention
- Evaluating risks
- Checking accuracy of information

8th Grade

20 lessons integrated in math throughout the year and 10 lessons taught in physical education

Making the Most of School
(taught in Math)
- Self-monitoring and self-management skills
- Academic goal setting
- Attendance
- Substance use prevention

Values and Choices
(taught in P.E.)
- Values and human sexuality
- Puberty: physical & emotional changes
- Decision making & consequences
- Recognizing sexual pressure
- Refusal & assertiveness skills
- Teen pregnancy
- Effects of drugs in pregnancy
- STD's
- Sexual assault

9th Grade

47-57 lessons taught 5 times a week for 2 marking periods as a Life Skills Class

Crossroads: A Program to Promote Responsible Decision Making
- Self-control
- Stress management
- Making transitions
- Problem solving
- Decision making
- Communication
- Violence prevention

Protecting Oneself and Others
- Substance use prevention for smoking, drinking, and drugs
- Violence prevention

AIDS Education & Prevention Week
- Review of basic facts about HIV
- Barriers to prevention
- Living with AIDS

10th Grade

47 lessons taught 5 times a week for two marking periods as a Life Skills Class

Violence Prevention
- Understanding violence
- Substance use prevention

Conflict Resolution
- Communication
- Conflict cycle
- Review of social problem solving
- Communication & human sexuality
- Violence prevention

Strengthening Relationships with Family and Friends
- Application of problem solving and conflict resolution to situations with family and friends
- Accepting individual differences

11th Grade

37 lessons integrated in U.S. History II throughout the year, 3 lessons taught in English

A World of Difference
(taught in History)
- Beliefs and values
- Prejudice, stereotyping, and discrimination
- Scapegoating and racism
- Violence prevention

Substance Use Prevention
(taught in History)
- Effects of drug use in pregnancy & video *Innocent Addicts*

HIV/AIDS Education & Prevention
(taught in English)
- Review of basic facts about HIV
- Barriers to prevention
- Living with AIDS

12th Grade

16 lessons taught one time a week for two marking periods as a senior guidance class, 5-10 lessons taught in English

Transition Skills for Life
- Planning for transitions
- Coping with stress and anxiety
- Help seeking & social support
- Service learning

Substance Use Prevention
(taught in English & Senior Seminars)
- Legal, social, health, & peer resistance issues surrounding substance abuse
- Violence prevention

HIV/AIDS Education & Prevention
(taught in English)
- Review of basic facts about HIV
- Barriers to prevention
- Living with AIDS

APPENDIX 1:

NEW HAVEN ADOLESCENT ASSESSMENT

ID# _____

NEW HAVEN ADOLESCENT ASSESSMENT

GOALS AND THE FUTURE

- please circle the number that best corresponds to your feeling.

1. How important is it for you: **1= not too important 2=somewhat important 3=very important**

To be considered a good student by your teacher?	1	2	3
To get at least a B average this year?	1	2	3
To have good enough grades to get into college?	1	2	3
To be considered smart by other students?	1	2	3

2. How many of your friends get good grades in school?

0.none 1.some of them 2.most or all of them

3. Eventually, how much education do you want to get?(check the correct box)

☐ 0.go to high school for a while ☐ 1.complete high school
☐ 2.go to college for a while ☐ 3.finish college
☐ 4.vocational/technical training ☐ 5.military

4. How many of your friends have dropped out of school before finishing high school?

0.none 1. some of them 2. most or all of them

5. What are the chances that:
(circle response)

You will graduate from high school?	very low	low	50-50	high	very high
You will go to college/technical or trade school?	very low	low	50-50	high	very high
You will have a job that pays well?	very low	low	50-50	high	very high

5.What are the chances that:

You will have a happy family life? very low low 50-50 high very high

You will stay in good health most of the time? very low low 50-50 high very high

HIGH RISK BEHAVIOR

In this section, we ask questions about cigarettes. (Circle the best response)

6. Have you ever smoked cigarettes?

☐ 0. no,never ☐ 1. yes, but only once

☐ 2. yes, a few times ☐ 3. yes, more than a few times

7. During the past 30 days, on how many days did you smoke?

0 days 1-5 days 6-30 days

8. During the past 30 days, on the days you smoked, how many cigarettes did you smoke per day?

☐ 0. I did not smoke during the past 30 days ☐ 1. 1 cigarette per day

☐ 2. 2-5 cigarettes per day ☐ 3. 6-10 cigarettes per day

☐ 4. 11-20 cigarettes per day ☐ 5. more than 20 cigarettes per day

9. How many of your friends smoke cigarettes on a pretty regular basis (3+ times/week)?

0. none of them 1. some of them 2.most or all of them

In this section we ask about alcohol. For these questions a "drink" = beer, wine cooler, shot of liquor, or mixed drink.

10. During the past 30 days, how many times (if any) have you had a drink of beer,wine cooler,etc.

0 times 1-9 times 10-19 times 20-29 times 30+ times

11. During the past 30 days, on how many days (if any) did you have five or more drinks of alcohol in a row, that is, within a couple of hours?

0 days 1-5 days 6-14 days 15 or more days

12. In the past 30 days, how many times (if any) have you...

Had fights or arguments while you were drinking alcohol?	0 times	1-5 times	6-9 times	10+ times	
Been drunk or very high from alcohol?	0	1-5	6-9	10+	
Worried that one of your parents drinks too much alcohol?	0	1-5	6-9	10+	
Ridden in a car driven by someone who had been drinking alcohol?	0	1-5	6-9	10+	
Had sexual intercourse after drinking alcohol?	0	1-5	6-9	10+	N/A

13. How many of your friends drink alcohol fairly regularly?(3+/week)

0. none of them 1. some of them 2.most or all of them

The next questions are about marijuana and other drugs.

14. How many of your friends use marijuana (ses, reefer, pot)?

0. none of them 1. some of them 2. most or all of them

15. In the past 30 days, how many times (if any) have you used marijuana?

0 times 1-9 times 10-19 times 20-29 times 30+ times

16. **During your lifetime**, how many times have you used ...

	never (0 times)	1-2 times	3+ times
cocaine/crack, by smoking	0	1-2	3+
cocaine, by snorting	0	1-2	3+
heroin, by snorting	0	1-2	3+
heroin, by injection	0	1-2	3+
LSD(Acid), Mushrooms, or Ecstasy	0	1-2	3+
Things you inhale or sniff to get high (like paint, glue, whip-its, etc)	0	1-2	3+

Pills (uppers, downers, tranquilizers)	0	1-2	3+

In the following questions the word "drug" includes pot, illy, crack, etc.

17. During the past 30 days, how many times (if any) have you....

had fights or arguments with other people while you were using drugs	0 times	1-5 times	6-9 times	10+ times
been high from drugs	0	1-5	6-9	10+
worried that one of your parents uses drugs	0	1-5	6-9	10+
ridden in a car or other vehicle driven by someone who had been using drugs	0	1-5	6-9	10+
had sex after using drugs	0	1-5	6-9	10+ N/A

18. During the past 30 days, how many times(if any) have you:

Started a fist fight or shoving match?	0 times	1-5 times	6-9 times	10+ times
Shoplifted from a store?	0	1-5	6-9	10+
Damaged or marked up public or private property?	0	1-5	6-9	10+
Lied to a teacher to cover up something you did?	0	1-5	6-9	10+
Stayed out all night without permission?	0	1-5	6-9	10+
Lied to your parents or guardians about where you have been or who you were with?	0	1-5	6-9	10+

During the past 30 days, how many times (if any) have you:

Skipped school without permission?	0 times	1-5 times	6-9 times	10+ times
Carried a gun?	0	1-5	6-9	10+

Been involved in gang or posse fights?	0	1-5	6-9	10+
Been arrested by the police?	0	1-5	6-9	10+
Seen someone get shot or stabbed?	0	1-5	6-9	10+

18. During the past 30 days, how many times (if any) have you:

Been suspended from school?	0	1-5	6-9	10+
Seen your parents or guardians physically fight (choking, punching...)?	0	1-5	6-9	10+
Been sent out of the classroom for doing something wrong?	0	1-5	6-9	10+
Been high at school from drinking alcohol or smoking marijuana?	0	1-5	6-9	10+
Sold drugs?	0	1-5	6-9	10+

These next questions are about your support system.

19. When you have a problem that really bothers you, how often do you:

talk about it with a family member (mother, sister, etc.)?	0.almost never	1.sometimes	2.often	3.almost always
talk about it with a friend who is not a family member?	0. almost never	1. sometimes	2. often	3. almost always
keep it to yourself?	0.almost never	1. sometimes	2.often	3 .almost always

STRESS

20. How stressful is your life?

0.not at all 1.slightly 2.moderate 3.very 4. extremely

21. In the past year, how often have you been worried or concerned about:

	not at all	rarely	sometimes	often	always
having to move	1	2	3	4	5
not having a place of your own	1	2	3	4	5
having someplace to stay at night	1	2	3	4	5
where you'll be getting your next meal	1	2	3	4	5
needing money	1	2	3	4	5
your safety	1	2	3	4	5
your health/well-being	1	2	3	4	5
your use of alcohol	1	2	3	4	5
your use of drugs	1	2	3	4	5

	not at all	rarely	sometimes	often	always
a loved one's safety	1	2	3	4	5
a loved one's health/well-being	1	2	3	4	5
a loved one's use of alcohol	1	2	3	4	5
a loved one's use of drugs	1	2	3	4	5
your relationship with a loved one	1	2	3	4	5
death of a loved one	1	2	3	4	5
getting bad grades in school	1	2	3	4	5
not being popular and well-liked by peers	1	2	3	4	5
not having the right clothes	1	2	3	4	5
parents pressuring you to do well	1	2	3	4	5
being thought of as a bad person	1	2	3	4	5

finding a job	1	2	3	4	5
losing hope in the future	1	2	3	4	5
being involved in illegal activities	1	2	3	4	5
being at risk of getting HIV	1	2	3	4	5

22. In general, how do you deal with the stress in your life?

	not at all	rarely	sometimes	often
keep your feelings to yourself	1	2	3	4
try to forget about the whole thing	1	2	3	4
double your efforts to make things better	1	2	3	4
express anger to someone who contributed to the problem	1	2	3	4
criticize or lecture yourself	1	2	3	4
try to prevent your feelings from interfering with other things	1	2	3	4
make a plan of action and follow it	1	2	3	4

	not at all	rarely	sometimes	often
drink alcohol	1	2	3	4
exercise (jog, basketball, dance)	1	2	3	4
wish that the situation would go away	1	2	3	4
talk to someone who can do something about the problem	1	2	3	4
promise yourself that things will be different in the future	1	2	3	4
have sex (to relieve tension)	1	2	3	4
try to keep others from knowing how bad things are	1	2	3	4
stand your ground and fight for what you want	1	2	3	4
hope a miracle will happen	1	2	3	4
use drugs	1	2	3	4

try to get someone responsible to change their mind	1	2	3	4
just concentrate on what you have to do next - your next step	1	2	3	4
talk to someone about your feelings	1	2	3	4

These next statements pertain to your general outlook on life.

1-strongly disagree
2-disagree
3-don't agree or disagree
4-agree
5-strongly agree

23. On the whole, you are satisfied with yourself.	1	2	3	4	5
24. At times, you think you are no good at all.	1	2	3	4	5
25. You feel you have a number of good qualities.	1	2	3	4	5
26. You are able to do things as well as most people.	1	2	3	4	5
27. You feel you do not have much to be proud of.	1	2	3	4	5
28. You certainly feel useless at times.	1	2	3	4	5
29. You feel that you are a person of worth, at least equal to others.	1	2	3	4	5
30.You wish you could have more respect for yourself.	1	2	3	4	5
31.Overall, you think you are a failure.	1	2	3	4	5
32. You take a positive attitude toward yourself.	1	2	3	4	5

STOP

Now some questions about your AIDS education.

33. Where do you get **most** of your information about AIDS?

☐ 0.at school ☐ 1. at home
☐ 2.at church ☐ 3. from my doctor or nurse
☐ 4. from friends ☐ 5. television, magazines, newspapers
☐ 6. other(where)_____

34. Circle the best response.....	True	False	? (not sure)
AIDS is caused by a virus.	T	F	?
AIDS can be prevented.	T	F	?
You can get AIDS by going to school or work with someone who has it.	T	F	?
AIDS can be passed from mother to child during pregnancy.	T	F	?
There is a cure for AIDS.	T	F	?
An active and healthy person can have the AIDS virus and infect other people.	T	F	?
There are medical treatments for people with AIDS.	T	F	?
You can know by looking at someone if she or he has the AIDS virus.	T	F	?
You can get the AIDS virus by having sex once without a condom.	T	F	?
Teenagers are too young to get AIDS	T	F	?
Condoms lower the risk of catching the AIDS virus.	T	F	?

A person can have the AIDS virus for years and infect other people before he or she gets sick. T F ?

35. Here are some statements about AIDS. Please give your opinion on each of these statements.

1-strongly disagree
2- disagree
3-don't agree or disagree
4- agree
5- strongly agree

You are in control of whether or not you get AIDS.	1	2	3	4	5
If you get AIDS it's a matter of fate (destiny.)	1	2	3	4	5
You carry a condom with you "just in case".	1	2	3	4	5
If you take the right steps, you can avoid AIDS.	1	2	3	4	5

Continued

35. Here are some statement about AIDS. Please give your opinion on each of these statements

1-strongly disagree
2- disagree
3-don't agree or disagree
4- agree
5- strongly agree

If it's meant to be, you will get AIDS.	1	2	3	4	5
More than anything else, chance (luck) determines whether or not you get AIDS.	1	2	3	4	5
Whether you get AIDS depends on what your sex partner wants to do.	1	2	3	4	5
Your own behavior determines whether or not you get AIDS.	1	2	3	4	5
You control your body and determine when you will have sex.	1	2	3	4	5
You could convince a partner to use a condom.	1	2	3	4	5
You could ask a partner about their previous sexual history.	1	2	3	4	5

You could refuse sex if your

partner did not want to use a condom.	1	2	3	4	5
You know how to use condoms.	1	2	3	4	5

36. Here are the steps in putting on a condom, they are in the **wrong order** now. Please put the steps in the correct order using numbers 1-10. Place #1 at the first step, etc. until you get to # 10.

Loss of erection _____
Leave room at the tip ____
Ejaculation _____
Sexual arousal _____
Erection _____
Dab lubricant on penis _____
Roll condom on _____
Sexual intercourse _____
Hold onto rim _____
Withdraw penis ____

This section is about dating/going with someone and sex(slappin' skins,hittin' it, sexual intercourse)

Circle the best response. (circle N/A if the question does not apply to you because you are a virgin.)

37. Are you dating or going with someone fairly regularly now? 0.No 1.Yes

38. How long have you been seeing this person? ____weeks _____months _____years

39.Think of all of your friends of the same sex as you. How many of them have had sex?
0.almost none of them 1.some of them 2.most/all of them

40. Have you ever had sex? 0.No 1.Yes

41. How old were you the first time you had sex? _____ N/A

42. How old was your partner the first time you had sex?_____ N/A

43. Was your first sexual experience 0.forced 1.voluntary 2.N/A

44. How many sexual partners have you had in the past 6 months? ---------- N/A

45. What were the ages of your last three sexual partners?
N/A
_____ _____ _____
Most recent 2nd 3rd

46.Do you think a sexual partner of yours had sex with anyone else before you?
0.No 1. Yes 2. Not sure 3.N/A

47.Have you ever had sex (vaginal,oral, or anal) with a man or a woman without using a condom?
0.No 1. Yes 2. Not sure 3.N/A

48. Have you ever shared needles for IV drugs, tattooing, injecting steroids, or ear piercing?
0.No 1. Yes 2. Not sure 3.N/A

49. Have you ever had sex with someone who has used IV drugs?
0.No 1. Yes 2. Not sure 3.N/A

50. Have you ever had a sexually transmitted disease or infection?
(For example: syphilis, gonorrhea, chlamydia, trich, herpes, crabs, or warts)
0.No 1. Yes 2. Not sure 3.N/A

51. Have you ever been pregnant or gotten someone pregnant?
0.No 1. Yes 2. Not sure

51a. If yes, indicate whether:
0. pregnant now 1. had abortion 2.miscarried 3. had baby

52. How many times have you been pregnant or gotten someone pregnant?
0 times 1 time 2 or more times not sure

53. What do you normally use for birth control? (check all that apply)
☐ 0. None ☐ 5. diaphragm or cervical cap
☐ 1.condoms ☐ 6.IUD(intrauterine device)
☐ 2.pill ☐ 7. Shot (depo provera)
☐ 3.norplant (stays under the skin) ☐ 8. Pulling out, Rhythm method
☐ 4. Foam, jelly, sponge ☐ 9. Other _____

54. In your relationship who is responsible for providing condoms?
0.self 1.partner 2.both 3.N/A

55. Have you ever traded sex for money? 0. No 1. Yes

56. Have you ever traded sex for drugs? 0. No 1. Yes

57.Have you ever been forced to have sex? 0. No 1. Yes

58.Have you ever forced someone to have sex with you? 0. No 1. Yes

59.Has any older or stronger member of your family ever touched you sexually or had you touch them sexually? 0. No 1. Yes

59a. If yes, how old were you when this occurred? _____ N/A

60.Has any adult or older person outside the family ever touched you sexually against your wishes or forced you to touch them sexually? 0. No 1. Yes

60a. If yes, how old were you when this occurred? _____ N/A

61a. Has anyone in your family ever hit you so hard or so often that you had marks/bruises or were afraid of that person? 0. No 1. Yes

62. Do you talk with your sexual partner(s) about using condoms?

0.always 1.usually 2.sometimes 3.never 4.N/A

63. Do you talk with your sexual partner(s) about their previous sexual and drug history?
0.always 1.usually 2.sometimes 3.never 4.N/A

64.When you have sex do you (or your partner) use condoms?
0.always 1.usually 2.sometimes 3.never 4.N/A

65 .The last time you had sex, did you (or your partner) use a condom?
0. No 1. Yes 2. Not sure 3. N/A

65a. If No,why not?

_____

66. If you wanted to get a condom, how easy would it be for you to get one?
0.Very easy 1.Sort of easy 2.Sort of hard 3. Very hard

67. In your opinion, sex with a condom is.... ☐ 0.**better** sex without a condom.
☐ 1.**worse**

☐ 2. **the same as**
☐ 3. **N/A**

68a. In your opinion, at what age is somebody physically ready to have sex? _____

68b. In your opinion, at what age is somebody mentally ready to have sex? _____

69. Where do you get **most** of your information about sex?

☐ 0.at school ☐ 1. at home
☐ 2.at church ☐ 3. from my doctor or nurse
☐ 4. from friends ☐ 5. television, magazines, newspapers
☐ 6. other(where)_____

70. Most people like me have: (Check the best response)

☐ 0. no chance of catching the AIDS virus
☐ 1. a small chance of catching the AIDS virus
☐ 2. a great chance of catching the AIDS virus

71. Do you know people who are HIV+, sick with AIDS, or who have died from AIDS?

0.No 1. Yes 2. Not sure

Let's talk about sex

A good way to get started is to look at a recent experience. I'd like for you to think about the last time you were with a partner sexually.

72. Where were you and your partner?

☐ 1.At my house ☐ 2. At their house
☐ 3.At school ☐ 4. In a car
☐ 5.Other _____ ☐ 6. N/A

73. Who initiated sex?

0. Self 1. partner 2. both 3. N/A

74. Would you describe your partner as (check one)

☐ 0. a steady partner ☐ 1. a good friend
☐ 2. an acquaintance ☐ 3. a stranger
☐ 4. N/A

75. When you had sex this time, was it (check all that apply)

☐ 0.for pleasure/fun
☐ 1.because you forced him/her

☐ 2.because you were forced
☐ 3.because you did not know how to stop it
☐ 4.because you were given money, drugs, etc.
☐ 5.because you gave money, drugs, etc.
☐ 6.because you were drinking or high
☐ 7.N/A

76. What other sexual activities did you do?(circle all that apply)
0.deep kissing 1.touching/massaging 2.oral sex 3. anal sex 4. N/A

77. Did you discuss protection against AIDS transmission or birth control?
0. No 1. Yes 2. N/A

77a. If no, why not? _____

77b. **If yes**, when did this discussion occur?
0. before sex 1. during sex 2. after sex

Now I want to find out how you were feeling.

78. What were you feeling as you were together having sex?(check all that apply)
☐ 1.Anxious/nervous
☐ 2.Passion/desire/love
☐ 3.Anger
☐ 4.Hurt
☐ 5.Shy/passive
☐ 6.Sad/depressed
☐ 7.Happy/excited
☐ 8.N/A

79. **After** you had sex how did you feel? (check all that apply)
☐ 1.Anxious/nervous
☐ 2.Passion/desire/love
☐ 3.Anger

☐ 4.Hurt
☐ 5.Shy/passive
☐ 6.Sad/depressed
☐ 7.Happy/excited
☐ 8.N/A

Background Information
These next questions are about your background.

80. AGE (in years) ___ ___

81. SEX (circle response) 0.Male 1.Female

82. What grade are you in?
6th 7th 8th 9th 10th 11th 12th
other_____

83. When did you first attend public school in New Haven?
Kindergarten 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th 11th 12th grade

84. Have you ever stayed back or repeated a grade in school?
0.no 1. yes, once 2.yes, more than once

85. Which grades did you repeat?(circle all that apply)
1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th 11th 12th

86. Did you repeat grades because of.....

0.Academic failure 1.Absenteeism 2.other, explain————

87. What kinds of grades do you usually get? (please circle only one answer)

0.Mostly A's 1.Mostly B's 2.Mostly C's 3.Mostly D's 4.Mostly F's

88. Check off all of the adults/grown-ups(>18 years old) you are living with now.
(check all that apply)
☐ 0.Mother ☐1.Father
☐ 2.Stepmother ☐3.Stepfather
☐ 4.Other family members (aunt, grandfather)
☐ 5.Foster Family ☐ 6.Other adult

89. How many children(<18 years old) live in your home?

0 1 2 3 4 5 6 or more

90. Are your parents or guardians (or is the adult you live with): check one

- ☐ 0.Married
- ☐ 1.Divorced
- ☐ 2.Never married
- ☐ 3.Separated
- ☐ 4.Widowed
- ☐ 5.Don't know

91. What is the highest level of schooling your father or male guardian completed?(check one)

- ☐ 0.some high school or junior high
- ☐ 1.completed high school
- ☐ 2.some college
- ☐ 3.completed college
- ☐ 4.completed advanced degree after college
- ☐ 5.don't know

92. What is the occupation(job) of your father/male guardian?(check one)

- ☐ 0.Blue-collar (construction)
- ☐ 1.White-collar (clerk)
- ☐ 2.Professional (doctor,teacher)
- ☐ 3.Clergy (pastor)
- ☐ 4.Sales/ Service
- ☐ 5.Unemployed
- ☐ 6.Illegal activities
- ☐ 7.Self-employed
- ☐ 8.Incarcerated
- ☐ 9.don't know

93. What is the highest level of schooling your mother or female guardian completed?

- ☐ 0.some high school or junior high
- ☐ 1.completed high school
- ☐ 2.some college
- ☐ 3.completed college
- ☐ 4.completed advanced degree after college
- ☐ 5.don't know

94. What is the occupation(job) of your mother/female guardian? (circle one)

- ☐ 0.Blue-collar (construction)
- ☐ 1.White-collar (clerk)
- ☐ 2.Professional (doctor,teacher)
- ☐ 3.Clergy (pastor)
- ☐ 4.Sales/ Service
- ☐ 5.Unemployed
- ☐ 6.Illegal activities
- ☐ 7.Self-employed
- ☐ 8.Incarcerated
- ☐ 9.don't know

95. What is your race?

☐ 0.African-American/Black ☐ 1.Caucasian/White
☐ 2.Latino/Hispanic ☐ 3.Native American Indian
☐ 4. Asian or Pacific Islander ☐ 5.Biracial (Parents are of different races)
☐ 6.Other _____

96. How many times have you moved from one home to another since this time last year? (circle response)

0 1 2 3 or more

97. What is your religion? _____

98. During the past year, how often have you gone to church, temple, or other religious services?

☐ 0.never ☐ 1.a few times
☐ 2.1 or 2 times a month ☐ 3.at least once a week
☐ 4.almost everyday

The End!

Thank you for participating!

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